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Audit

Report



YEAR 2000 COMPLIANCE OF THE
STANDARD ARMY MAINTENANCE SYSTEM-REHOST

Report Number 99-165

May 24, 1999

Office of the Inspector General
Department of Defense

ARI 99-11- 2049

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Acronyms

PEO STAMIS	Program Executive Office for Standard Army Management Information Systems
PM GCSS-A	Project Manager Global Combat Support System-Army
SAMS-R	Standard Army Maintenance System-Rehost
Y2K	Year 2000



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202

May 24, 1999

MEMORANDUM FOR DEPUTY UNDER SECRETARY OF DEFENSE
(LOGISTICS)
AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Audit Report on Year 2000 Compliance of the Standard Army
Maintenance System-Rehost (Report No. 99-165)

We are providing this final report for your information and use. This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor efforts to address the year 2000 computing challenge. Because this report contains no findings or recommendations, no written comments were required, and none were received. Therefore, we are publishing this report in final form.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Ms. Evelyn R. Klemstine at (703) 604-9172 (DSN 664-9172) (eklemstine@dodig.osd.mil) or Mr. John M. Gregor at (703) 604-9632 (DSN 664-9632) (jgregor@dodig.osd.mil). See Appendix B for the report distribution. The audit team members are listed inside the back cover.

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Report No. 99-165

(Project No. 9LH-5039.02)

May 24, 1999

Year 2000 Compliance of the Standard Army Maintenance System-Rehost

Executive Summary

Introduction. This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor efforts to address the year 2000 (Y2K) computing challenge. For a list of audit projects addressing the issue, see the Y2K webpage on the IGnet at <http://www.ignet.gov/>.

The Standard Army Maintenance System-Rehost is a mission-critical Standard Army Management Information System under the Project Manager Global Combat Support System-Army (formerly Project Manager Integrated Logistics Systems). As of April 1, 1999, the Standard Army Maintenance System-Rehost system was scheduled to participate in logistics end-to-end testing. The Standard Army Maintenance System-Rehost consists of hardware and software, that automate maintenance shop operations, maintenance supply operations, and maintenance program management functions at all intermediate maintenance levels. It is deployed at direct support and general support maintenance companies and at support battalions and material management centers of divisions, corps, and echelons above corps. The Standard Army Maintenance System-Rehost is scheduled to be replaced by the Global Combat Support System-Army beginning in the second quarter of FY 2001.

Objectives. The overall audit objective was to evaluate whether DoD was adequately planning for and managing Y2K risks for selected logistics systems to avoid disruption of the DoD mission. Specifically, we reviewed the Y2K risk assessments, testing, and contingency planning for selected logistics systems that support the DoD mission. We selected mission-critical logistics systems that were of particular importance to the Director, Logistics Systems Modernization, Office of the Deputy Under Secretary of Defense (Logistics). For this report, we reviewed the Standard Army Maintenance System-Rehost.

Results. The Program Executive Office for Standard Army Management Information Systems Y2K Project Office and the Project Manager for Global Combat Support System-Army Project Office adequately supported the March 29, 1999, certification of Y2K compliance of the Standard Army Maintenance System-Rehost system by assessing risks, testing for Y2K compliance, and preparing interface agreements and contingency plans. Although the December 31, 1998, milestone that the DoD Y2K Management Plan established for implementation was exceeded because of resource constraints, the Program Executive Office for Standard Army Management Information Systems took effective action to ensure that the Standard Army Maintenance System-Rehost was certified in time to participate in logistics end-to-end testing that was scheduled to begin in April 1999. The Y2K project officer of the Program Executive Office for Standard Army Management Information Systems estimated that a

Y2K compliant Standard Army Maintenance System-Rehost system would be implemented at all active Army units by April 30, 1999, and at Army National Guard and Reserve units by September 30, 1999.

Management Comments. We provided a draft of this report to management on April 26, 1999. Because this report contains no findings or recommendations, written comments were not required, and none were received. Therefore, we are publishing the report in final form.

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Background

Executive Order. The Executive Order, "Year 2000 Conversion," February 4, 1998, mandates that Federal agencies do what is necessary to ensure that no critical Federal program experiences disruption because of the year 2000 (Y2K) computing problem. The Executive Order requires that the head of each agency ensure that efforts to address Y2K issues receive the highest priority in the agency.

DoD Y2K Management Plan. The "DoD Year 2000 (Y2K) Management Plan," version 2, December 1998, provides guidance for testing and certifying systems and preparing contingency plans for those systems, and stipulates the criteria that DoD Components must use to meet reporting requirements. The DoD Y2K Management Plan makes the principal staff assistants of the Office of the Secretary of Defense responsible for verifying that all functions under his or her purview will continue unaffected by Y2K issues. The principal staff assistant for logistics is the Under Secretary of Defense for Acquisition and Technology. The DoD Y2K Management Plan requires each principal staff assistant to:

- provide plans for functional end-to-end testing,
- certify that test plans include assessments of functional risk,
- ensure that test plans include listings of all mission-critical systems included in the test, and
- coordinate each test plan with the Military Departments and all other pertinent principal staff assistants.

The target implementation date for all mission-critical systems was December 31, 1998. Some logistics systems were not compliant, so the Director for Logistics Systems Modernization, Office of the Deputy Under Secretary of Defense (Logistics), requested the Inspector General, DoD, to examine what was being done to ensure that those systems were made compliant in time to participate in end-to-end testing, which was scheduled to begin in late April 1999.

Army Year 2000 Action Plan. The "Army Year 2000 (Y2K) Action Plan," revision II, June 1998, outlines the Army Y2K management strategy; provides guidance; and defines roles, responsibilities, and reporting requirements. The plan applies to all systems supported by information technology, their technical environment, and their communications devices.

Program Executive Office for Standard Army Management Information Systems. The Program Executive Office for Standard Army Management Information Systems (PEO STAMIS) was established in 1987 as part of the implementation of the Goldwater-Nichols Act. The mission of the PEO STAMIS is to plan, design, develop, acquire, install, and maintain complex management information systems as directed by the Army Acquisition

Executive. In July 1997, the PEO STAMIS established a Y2K project office to monitor and support the planning, resourcing, testing, certifying, and implementing of Y2K solutions for PEO STAMIS systems. The PEO STAMIS established the Y2K project office to ensure that no critical system failure occurs because of Y2K related problems. The PEO STAMIS is responsible for about 47 Army management information systems, one of which is the Standard Army Maintenance System-Rehost (SAMS-R).

Standard Army Maintenance System-Rehost. SAMS-R is a mission-critical Standard Army Management Information System under the Project Manager Global Combat Support System-Army (PM GCSS-A) (formerly Project Manager Integrated Logistics Systems). As of April 1, 1999, the SAMS-R was scheduled to participate in level I¹ logistics end-to-end testing. The SAMS-R system consists of hardware and software that automate maintenance shop operations, maintenance supply operations, and maintenance program management functions at all intermediate maintenance levels. It is deployed at direct support and general support maintenance companies as a SAMS-1 module and at support battalions and material management centers of divisions, corps, and echelons above corps as a SAMS-2 module. The SAMS-R is scheduled for replacement by the Global Combat Support System-Army beginning in the second quarter of FY 2001.

Objectives

The overall audit objective was to evaluate whether DoD was adequately planning for and managing Y2K risks for selected logistics systems to avoid disruption to the DoD mission. Specifically, we reviewed the Y2K risk assessments, testing, and contingency planning for selected logistics systems that support the DoD mission. We selected mission-critical logistics systems that were of particular importance to the Director for Logistics Systems Modernization, Office of the Deputy Under Secretary of Defense (Logistics). For this report, we reviewed the SAMS-R. See Appendix A for a discussion of the scope and methodology and for a summary of prior coverage.

¹ Level I testing includes verification activities that ensure mission-critical processes and systems within a Component's organizational boundaries are ready for Y2K.

Year 2000 Compliance of the Standard Army Maintenance System-Rehost

The PEO STAMIS Y2K Project Office and the PM GCSS-A Project Office adequately supported the March 29, 1999, certification of Y2K compliance of the SAMS-R system by assessing risks, testing for Y2K compliance, and preparing interface agreements and contingency plans. Although the milestone that the DoD Y2K Management Plan established for implementation was exceeded because of resource constraints, the PEO STAMIS took effective action to ensure that SAMS-R was certified in time to participate in logistics end-to-end testing that was scheduled to begin in April 1999. The PEO STAMIS Y2K project officer estimated that a Y2K compliant SAMS-R system would be implemented at all active Army units by April 30, 1999, and at Army National Guard and Reserve units by September 30, 1999.

Y2K Implementing Guidance

The PEO STAMIS and the PM GCSS-A issued supplemental guidance to the DoD Y2K Management Plan and the Army Y2K Action Plan. The PEO STAMIS published the "Program Executive Officer's Year 2000 Technical Assessment Process Handbook" in June 1997 and the "PEO STAMIS Year 2000 Program Management Plan," release 2, in August 1998. In May 1998, the PM GCSS-A published the "PM ILOGS [Project Manager Integrated Logistics Systems] Y2K Compliance Plan."

Initial Risk Assessment

The PM GCSS-A initiated an assessment of the SAMS-R² system to determine Y2K risks and concerns and to develop strategies for addressing those risks and concerns. Computer Sciences Corporation conducted the assessment from April 22 through May 30, 1997, and identified hardware and software that would have problems handling dates beyond 1999. The Computer Sciences Corporation concluded that SAMS-R was not Y2K compliant, and stated that the needed fixes were not technically difficult. It recommended that the PM GCSS-A execute a plan for addressing the hardware and software problems, ensuring that up-to-date system interface agreements were in place, and comprehensively testing the system after the Y2K fixes were made.

²At the time of the assessment, the SAMS-R was assessed as two individual systems, SAMS-1 and SAMS-2. In 1998, the PM GCSS-A combined the functions of SAMS-1 and SAMS-2 into a single system, which was renamed SAMS-R.

Compliance Milestone

The Army missed the DoD Y2K Management Plan December 31, 1998, milestone for implementation of mission-critical systems because of resource constraints. Recognizing the delay, the PEO STAMIS established a Y2K action team to ensure that the SAMS-R, and other logistics systems, were certified in time to participate in logistics end-to-end testing that was scheduled to begin in April 1999.

Resource Constraints. In June 1998, critical systems personnel resources from the U.S. Army Information Systems Software Development Center-Lee (the Software Development Center-Lee) were deployed to Bosnia and efforts to correct interface problems between the Army Combat Services Support Control System and SAMS-R were delayed. In addition, early retirements and downsizing at the Software Development Center-Lee in October and November 1998 affected Y2K certification efforts for SAMS-R.

Y2K Action Team. In November 1998, the PEO STAMIS established a Y2K action team to ensure the completion of Y2K certification of all PM GCSS-A logistics systems by March 31, 1999. The team was headed by the Deputy PM GCSS-A and included members from the Office of the Deputy Chief of Staff for Logistics, the PEO STAMIS, and the Software Development Center-Lee. Representatives from TRW Corporation, an independent contractor, also provided independent verification and validation support to the PM GCSS-A. The team members were assigned on a full-time basis and as of March 31, 1999, all PM GCSS-A logistics systems were certified Y2K compliant.

Army Certification Process

The PEO STAMIS Project Office and the PM GCSS-A followed the DoD Y2K Management Plan and the Army Y2K Action Plan to obtain certification on March 29, 1999, of a SAMS-R Y2K compliant system. The Army certification process included appropriately documented certifications, tests for Y2K compliance, interface agreements, and contingency plans.

Certification of SAMS-R System. The PEO STAMIS certified the SAMS-R system as Y2K compliant on March 29, 1999, in accordance with the DoD Y2K Management Plan. The PEO STAMIS Y2K Project Office and the PM GCSS-A Project Office followed the certification process outlined in the Army Y2K Action Plan. The purposes of the certification process were to:

- validate the effectiveness of Y2K solutions,
- provide a consolidated document to record organizations demonstrating due diligence, and
- provide a clear and complete audit trail.

Those purposes were adequately supported by documented test plans and test reports, and compliance checklists and matrices that summarized the results of compliance assessments and tests, the interface agreements, the contingency plans, and the participating organizations.

Testing Y2K Compliance. The Software Development Center-Lee, the system developer, tested SAMS-R for Y2K compliance. TRW Corporation provided test analysis of the Software Development Center-Lee test methodology to the PM GCSS-A. The February 25, 1999, "Standard Army Maintenance System-Rehost Year 2000 Certification Test Report" stated:

The certification test was a system level test that verified hardware, COTS/GOTS [commercial off-the-shelf and government off-the-shelf], custom application software, and external interface elements of the Y2K baseline worked together in a date aged and time warped environment in compliance with the Army Year 2000 Checklist.

The SAMS-R Y2K compliant software was further tested at a deployment validation site, the 2nd Support Center, 1st Corps Support Command, Fort Bragg, North Carolina, from March 15 to March 29, 1999. The Y2K software baselines were successfully loaded; and they processed actual files in a real-time operational environment.

Interface Agreements. As of April 1, 1999, the PM GCSS-A had signed interface agreements with all organizations that were responsible for maintaining systems with which SAMS-R interfaced. The agreements described interface configuration management and program management issues. Also, all parties agreed to have frequent and full exchange of information. If the sending or receiving system were to make any changes to the interface, that system manager was to notify the other as soon as the change was determined. According to terms of the interface agreements, interfacing system managers were to give 60-day notices for any changes that would affect SAMS-R.

SAMS-R Y2K Contingency Plans. The PM GCSS-A developed a system contingency plan in 1998 and the Office of the Deputy Chief of Staff for Logistics was expected to approve an operational contingency plan in April 1999. The Office of the Deputy Chief of Staff for Logistics approved the system contingency plan, "Year 2000 (Y2K) Contingency Plan for Standard Army Maintenance System 1&2-Rehost," in April 1998. The Army Combined Arms Support Command was developing an operational contingency plan to be used in conjunction with the overall system contingency plan.

The contingency plans identified Y2K risk contingencies and included the probability and consequences of the Y2K related risks. The contingency plans provided preparatory, execution, and recovery actions to minimize the impact of Y2K-related disruptions. The contingency plans described database administrators, functional users, help desk personnel, operational managers, specific actions, system administrators, and system managers who were necessary to minimize potential Y2K interruptions and failures to SAMS-R operations.

Implementation of Y2K Compliant Systems

The DoD Y2K database showed that field implementation of the Y2K compliant SAMS-R system was scheduled to be completed by September 30, 1999. The PEO STAMIS Y2K project officer estimated that compliant systems would be implemented at all active Army sites by April 30, 1999. Implementation would not be complete at Army National Guard and Reserve sites until September 30, 1999, because personnel and facilities would not be available to install and operate the Y2K compliant SAMS-R system.

Conclusion

The PEO STAMIS Y2K project officer and the PM GCSS-A complied with DoD and Army guidance in processing the SAMS-R system Y2K certification. Although delays were encountered, the certification of SAMS-R and deployment of contingency plans minimized the risk of a SAMS-R system failure associated with Y2K processing. Furthermore, the SAMS-R was scheduled to participate in logistics end-to-end testing.

Appendix A. Audit Process

This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the Y2K computing challenge. For a list of audit projects addressing this issue, see the Y2K web pages on the IGnet at <http://www.ignet.gov/>.

Scope

We reviewed and assessed the Y2K compliance status of the SAMS-R system. The Director, Logistics Systems Modernization, Office of the Deputy Under Secretary of Defense (Logistics) was concerned that SAMS-R might not be ready to participate in logistics end-to-end testing. We interviewed system and program officials from the PEO STAMIS, the PM GCSS-A Project Office, and the Software Development Center-Lee during the period of February 8 through April 13, 1999. We reviewed the DoD Y2K Management Plan and the Army Y2K Action Plan. We obtained documentation on the SAMS-R system status, interface agreements, test plans, test reports, contingency plans, and the Army certification process as of April 1, 1999. We used the information from the interviews and documents to assess the Y2K compliance status of SAMS-R.

DoD-Wide Corporate Level Goals. In response to the Government Performance and Results Act, DoD has established 6 DoD-wide corporate-level performance objectives and 14 goals for meeting the objectives. This report pertains to achievement of the following objective and goal.

Objective: Prepare now for an uncertain future. **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key war fighting capabilities. (DoD-3)

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objectives and goals in the Information Technology Management Functional Area.

Objective: Become a mission partner. **Goal:** Serve mission information users as customers. (ITM-1.2)

Objective: Provide services that satisfy customer information needs. **Goal:** Modernize and integrate DoD information infrastructure. (ITM-2.2)

Objective: Provide services that satisfy customer information needs. **Goal:** Upgrade technology base. (ITM-2.3)

High-Risk Area. In its identification of risk areas, the General Accounting Office has specifically designated risk in resolution of the Y2K problem as high. This report provides coverage of that problem and of the overall Information Management and Technology high-risk area.

Methodology

Use of Technical Assistance. A computer engineer from our Technical Assessments Division assisted in analyzing the SAMS-R system certification test plan and test results.

Audit Type, Dates, and Standards. We performed this program audit from February through mid-April 1999 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not use computer-processed data to perform this audit.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD. Further details are available upon request.

Management Control Program. We did not review the management control program related to the overall audit objective because DoD recognized the Y2K issue as a material management control weakness area in the FY 1998 Annual Statement of Assurance.

Summary of Prior Coverage

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews related to Y2K issues. General Accounting Office reports can be accessed over the Internet at <http://www.gao.gov/>. Inspector General, DoD, reports can be accessed over the Internet at <http://www.dodig.osd.mil/>.

Appendix B. Report Distribution

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Senate Committee on Appropriations

Senate Subcommittee on Defense, Committee on Appropriations

Senate Committee on Armed Services

Senate Committee on Governmental Affairs

Senate Special Committee on the Year 2000 Technology Problem

House Committee on Appropriations

House Subcommittee on Defense, Committee on Appropriations

House Committee on Armed Services

House Committee on Government Reform

House Subcommittee on Government Management, Information, and Technology,
Committee on Government Reform

House Subcommittee on National Security, Veterans Affairs, and International
Relations, Committee on Government Reform

House Subcommittee on Technology, Committee on Science

Audit Team Members

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